Reviewer's report

Title: Neck muscle cross-sectional area, brain volume and cognition in healthy older men; a cohort study

Version: 4 Date: 27 December 2012

Reviewer: Katsuo Fujiwara

Reviewer's report:

The present study examined neck muscle cross-sectional area and brain volume (whole brain, ventricular, hippocampal and cerebellar volumes) in 51 community-dwelling healthy older men, using neuroimaging method. Furthermore, the study executed multiple cognitive tests. The whole brain volume was significantly and positively related to the neck muscle cross-sectional area. The other brain volume parameters did not correlated with the neck muscle cross-sectional area. In addition, most results of the cognitive test were not significantly and positively related to the neck muscle cross-sectional area. Rather, the result in National Adult Reading Test was negatively related to the neck muscle cross-sectional area.

The neck muscle cross-sectional area and brain volume was properly measured in the present study. However, there are serious problems in which the hypothesis in the present study and the interpretation of the results are not clear at all. You assumed whether neck muscle size was positively associated with cognition and brain structure in older men. However, in Background, you did not describe theoretical background associated with the hypothesis. You should indicate the theoretical background and the significance of the study. In Discussion, you introduced the previous studies that the lean body muscles mass or fat volume was related to the cognitive function. You should clearly describe the relationship between the results in the present study and the previous findings.

I regret to inform you that your manuscript is not suitable for publication in the journal.

Level of interest: An article of insufficient interest to warrant publication in a scientific/medical journal

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.